

<110> Doi, Yoshiharu  
Matsusaki, Hiromi

<120> METHOD OF PRODUCING COPOLYMER POLYESTER

<130> 07898-070001

<140> 09/807,123

<141> 2001-04-05

<150> PCT/JP00/05331

<151> 2000-08-09

<150> JP 225102/1999

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<160> 11

<170> PatentIn Ver. 2.0

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<212> DNA

<213> Pseudomonas sp. strain 61-3

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Thr Ser Ala Arg Met Val Leu Thr Gln Ala Ile Lys Gln Pro Ile His	
35 40 45	
agc gtc aag cac gtc gcg cat ttt ggc atc gag ctg aag aac gtg atg	192
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Phe Gly Lys Ser Lys Leu Gln Pro Glu Ser Asp Asp Arg Arg Phe Asn	
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Asp Pro Ala Trp Ser Gln Asn Pro Leu Tyr Lys Arg Tyr Leu Gln Thr	
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Tyr Leu Ala Trp Arg Lys Glu Leu His Asp Trp Ile Gly Asn Ser Lys	
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Leu Ser Glu Gln Asp Ile Asn Arg Ala His Phe Val Ile Thr Leu Met	
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cag agc att ctg aac ccg ccg ggc aat ccg aaa tca cgt tac atg acc 1488
Gln Ser Ile Leu Asn Pro Pro Gly Asn Pro Lys Ser Arg Tyr Met Thr
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agc acc gac atg cca gcc acc gcc aac gag tgg caa gaa aac tca acc 1536
Ser Thr Asp Met Pro Ala Thr Ala Asn Glu Trp Gln Glu Asn Ser Thr
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aag cac acc gac tcc tgg tgg ctg cac tgg cag gcc tgg cag gcc gag 1584
Lys His Thr Asp Ser Trp Trp Leu His Trp Gln Ala Trp Gln Ala Glu
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cgc tcg ggc aaa ctg aaa aag tcc ccg acc agc ctg ggc aac aag gcc 1632
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Phe Gly Lys Ser Lys Leu Gln Pro Glu Ser Asp Asp Arg Arg Phe Asn
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Asp Ile Asn Met Leu Gly Ala Cys Ser Gly Gly Ile Thr Cys Thr Ala				
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Leu Leu Gly His Tyr Ala Ala Leu Gly Glu Lys Lys Val Asn Ala Leu				
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Thr Leu Leu Val Ser Val Leu Asp Thr Thr Leu Asp Ser Gln Val Ala				
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Leu Phe Val Asp Glu Lys Thr Leu Glu Ala Ala Lys Arg His Ser Tyr				
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Gln Ala Gly Val Leu Glu Gly Arg Asp Met Ala Lys Val Phe Ala Trp				
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Met Arg Pro Asn Asp Leu Ile Trp Asn Tyr Trp Val Asn Asn Tyr Leu				
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Leu Gly Asn Glu Pro Pro Val Phe Asp Ile Leu Phe Trp Asn Asn Asp				
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Thr Thr Arg Leu Pro Ala Ala Phe His Gly Asp Leu Ile Glu Met Phe				
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Lys Asn Asn Pro Leu Val Arg Ala Asn Ala Leu Glu Val Ser Gly Thr				
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Pro Ile Asp Leu Lys Gln Val Thr Ala Asp Ile Tyr Ser Leu Ala Gly				
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Thr Asn Asp His Ile Thr Pro Trp Lys Ser Cys Tyr Lys Ser Ala Gln				
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Gln Ser Ile Leu Asn Pro Pro Gly Asn Pro Lys Ser Arg Tyr Met Thr				
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Lys His Thr Asp Ser Trp Trp Leu His Trp Gln Ala Trp Gln Ala Glu				
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Ser	Ala	Arg	His	Val	Leu	Ala	Leu	Gly	Gly	Gln	Leu	Gly	Arg	Val	Leu	
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Met	Ser	Asp	Asp	Asp	Arg	Ala	Arg	Ala	His	Phe	Val	Phe	Ala	Leu	Leu	
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Asn	Asp	Ala	Val	Ser	Pro	Ser	Asn	Thr	Leu	Leu	Asn	Pro	Leu	Ala	Ile	
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Asn	Pro	Asp	Val	Arg	His	Arg	Glu	Trp	Gly	Leu	Ser	Ser	Tyr	Val	Glu	
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&lt;213&gt; Pseudomonas sp. strain 61-3

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495

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                   50                  55                  60  
 ccc gca cgc cag gcc gcg atc aag gcc ggc ctg ccg gcg atg gtg ccg 240  
 Pro Ala Arg Gln Ala Ala Ile Lys Ala Gly Leu Pro Ala Met Val Pro  
   65                  70                  75                  80  
 gcc atg acc atc aac aag gtg tgc ggc tcg ggc ctg aag gcc gtg atg 288  
 Ala Met Thr Ile Asn Lys Val Cys Gly Ser Gly Leu Lys Ala Val Met  
                   85                  90                  95  
 ctg gcc gcc aac gcg atc atg gcg ggc gac gcc gag atc gtg gtg gcc 336  
 Leu Ala Ala Asn Ala Ile Met Ala Gly Asp Ala Glu Ile Val Val Ala  
                   100                  105                  110  
 ggc ggc cag gaa aac atg agc gcc gcc ccg cac gtg ctg ccg ggc tcg 384  
 Gly Gly Gln Glu Asn Met Ser Ala Ala Pro His Val Leu Pro Gly Ser  
                   115                  120                  125  
 cgc gat ggt ttc cgc atg ggc gat gcc aag ctg gtc gac acc atg atc 432  
 Arg Asp Gly Phe Arg Met Gly Asp Ala Lys Leu Val Asp Thr Met Ile  
   130                  135                  140  
 gtc gac ggc ctg tgg gac gtg tac aac cag tac cac atg ggc atc acc 480  
 Val Asp Gly Leu Trp Asp Val Tyr Asn Gln Tyr His Met Gly Ile Thr  
  145                  150                  155                  160  
 gcc gag aac gtg gcc aag gaa tac ggc atc aca cgc gag gcg cag gat 528  
 Ala Glu Asn Val Ala Lys Glu Tyr Gly Ile Thr Arg Glu Ala Gln Asp  
                   165                  170                  175  
 gag ttc gcc gtc ggc tcg cag aac aag gcc gaa gcc gcg cag aag gcc 576  
 Glu Phe Ala Val Gly Ser Gln Asn Lys Ala Glu Ala Ala Gln Lys Ala  
                   180                  185                  190  
 ggc aag ttt gac gaa gag atc gtc ccg gtg ctg atc ccg cag cgc aag 624  
 Gly Lys Phe Asp Glu Glu Ile Val Pro Val Leu Ile Pro Gln Arg Lys



```

      195              200              205
ggc gac ccg gtg gcc ttc aag acc gac gag ttc gtg cgc cag ggc gcc 672
Gly Asp Pro Val Ala Phe Lys Thr Asp Glu Phe Val Arg Gln Gly Ala
210              215              220
acg ctg gac agc atg tcc ggc ctc aag ccc gcc ttc gac aag gcc ggc 720
Thr Leu Asp Ser Met Ser Gly Leu Lys Pro Ala Phe Asp Lys Ala Gly
225              230              235              240
acg gtg acc gcg gcc aac gcc tcg ggc ctg aac gac ggc gcc gcc gcg 768
Thr Val Thr Ala Ala Asn Ala Ser Gly Leu Asn Asp Gly Ala Ala Ala
245              250              255
gtg gtg gtg atg tcg gcg gcc aag gcc aag gaa ctg ggc ctg acc ccg 816
Val Val Val Met Ser Ala Ala Lys Ala Lys Glu Leu Gly Leu Thr Pro
260              265              270
ctg gcc acg atc aag agc tat gcc aac gcc ggt gtc gat ccc aag gtg 864
Leu Ala Thr Ile Lys Ser Tyr Ala Asn Ala Gly Val Asp Pro Lys Val
275              280              285
atg ggc atg ggc ccg gtg ccg gcc tcc aag cgc gcc ctg tcg cgc gcc 912
Met Gly Met Gly Pro Val Pro Ala Ser Lys Arg Ala Leu Ser Arg Ala
290              295              300
gag tgg acc ccg caa gac ctg gac ctg atg gag atc aac gag gcc ttt 960
Glu Trp Thr Pro Gln Asp Leu Asp Leu Met Glu Ile Asn Glu Ala Phe
305              310              315              320
gcc gcg cag gcg ctg gcg gtg cac cag cag atg ggc tgg gac acc tcc 1008
Ala Ala Gln Ala Leu Ala Val His Gln Gln Met Gly Trp Asp Thr Ser
325              330              335
aag gtc aat gtg aac ggc ggc gcc atc gcc atc ggc cac ccg atc ggc 1056
Lys Val Asn Val Asn Gly Gly Ala Ile Ala Ile Gly His Pro Ile Gly
340              345              350
gcg tcg ggc tgc cgt atc ctg gtg acg ctg ctg cac gag atg aag cgc 1104
Ala Ser Gly Cys Arg Ile Leu Val Thr Leu Leu His Glu Met Lys Arg
355              360              365
cgt gac gcg aag aag ggc ctg gcc tcg ctg tgc atc ggc ggc ggc atg 1152
Arg Asp Ala Lys Lys Gly Leu Ala Ser Leu Cys Ile Gly Gly Gly Met
370              375              380
ggc gtg gcg ctg gca gtc gag cgc aaa 1179
Gly Val Ala Leu Ala Val Glu Arg Lys
385              390

```

&lt;210&gt; 6

&lt;211&gt; 393

&lt;212&gt; PRT

<213> *Ralstonia eutropha*

&lt;400&gt; 6

```

Met Thr Asp Val Val Ile Val Ser Ala Ala Arg Thr Ala Val Gly Lys
1          5          10          15
Phe Gly Gly Ser Leu Ala Lys Ile Pro Ala Pro Glu Leu Gly Ala Val
20          25          30
Val Ile Lys Ala Ala Leu Glu Arg Ala Gly Val Lys Pro Glu Gln Val
35          40          45
Ser Glu Val Ile Met Gly Gln Val Leu Thr Ala Gly Ser Gly Gln Asn
50          55          60
Pro Ala Arg Gln Ala Ala Ile Lys Ala Gly Leu Pro Ala Met Val Pro
65          70          75          80
Ala Met Thr Ile Asn Lys Val Cys Gly Ser Gly Leu Lys Ala Val Met
85          90          95
Leu Ala Ala Asn Ala Ile Met Ala Gly Asp Ala Glu Ile Val Val Ala

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<210> 7
<211> 738
<212> DNA
<213> Ralstonia eutropha
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<400> 7																
atg	act	cag	cgc	att	gcg	tat	gtg	acc	ggc	ggc	atg	ggt	ggt	atc	gga	48
Met	Thr	Gln	Arg	Ile	Ala	Tyr	Val	Thr	Gly	Gly	Met	Gly	Gly	Ile	Gly	
1				5					10					15		
acc	gcc	att	tgc	cag	cgg	ctg	gcc	aag	gat	ggc	ttt	cgt	gtg	gtg	gcc	96
Thr	Ala	Ile	Cys	Gln	Arg	Leu	Ala	Lys	Asp	Gly	Phe	Arg	Val	Val	Ala	
			20					25					30			
ggt	tgc	ggc	ccc	aac	tcg	ccg	cgc	cgc	gaa	aag	tgg	ctg	gag	cag	cag	144
Gly	Cys	Gly	Pro	Asn	Ser	Pro	Arg	Arg	Glu	Lys	Trp	Leu	Glu	Gln	Gln	
		35					40					45				

```

aag gcc ctg ggc ttc gat ttc att gcc tcg gaa ggc aat gtg gct gac 192
Lys Ala Leu Gly Phe Asp Phe Ile Ala Ser Glu Gly Asn Val Ala Asp
50 55 60
tgg gac tcg acc aag acc gca ttc gac aag gtc aag tcc gag gtc ggc 240
Trp Asp Ser Thr Lys Thr Ala Phe Asp Lys Val Lys Ser Glu Val Gly
65 70 75 80
gag gtt gat gtg ctg atc aac aac gcc ggt atc acc cgc gac gtg gtg 288
Glu Val Asp Val Leu Ile Asn Asn Ala Gly Ile Thr Arg Asp Val Val
85 90 95
ttc cgc aag atg acc cgc gcc gac tgg gat gcg gtg atc gac acc aac 336
Phe Arg Lys Met Thr Arg Ala Asp Trp Asp Ala Val Ile Asp Thr Asn
100 105 110
ctg acc tcg ctg ttc aac gtc acc aag cag gtg atc gac ggc atg gcc 384
Leu Thr Ser Leu Phe Asn Val Thr Lys Gln Val Ile Asp Gly Met Ala
115 120 125
gac cgt ggc tgg ggc cgc atc gtc aac atc tcg tcg gtg aac ggg cag 432
Asp Arg Gly Trp Gly Arg Ile Val Asn Ile Ser Ser Val Asn Gly Gln
130 135 140
aag ggc cag ttc ggc cag acc aac tac tcc acc gcc aag gcc ggc ctg 480
Lys Gly Gln Phe Gly Gln Thr Asn Tyr Ser Thr Ala Lys Ala Gly Leu
145 150 155 160
cat ggc ttc acc atg gca ctg gcg cag gaa gtg gcg acc aag ggc gtg 528
His Gly Phe Thr Met Ala Leu Ala Gln Glu Val Ala Thr Lys Gly Val
165 170 175
acc gtc aac acg gtc tct ccg ggc tat atc gcc acc gac atg gtc aag 576
Thr Val Asn Thr Val Ser Pro Gly Tyr Ile Ala Thr Asp Met Val Lys
180 185 190
gcg atc cgc cag gac gtg ctc gac aag atc gtc gcg acg atc ccg gtc 624
Ala Ile Arg Gln Asp Val Leu Asp Lys Ile Val Ala Thr Ile Pro Val
195 200 205
aag cgc ctg ggc ctg ccg gaa gag atc gcc tcg atc tgc gcc tgg ttg 672
Lys Arg Leu Gly Leu Pro Glu Glu Ile Ala Ser Ile Cys Ala Trp Leu
210 215 220
tcg tcg gag gag tcc ggt ttc tcg acc ggc gcc gac ttc tcg ctc aac 720
Ser Ser Glu Glu Ser Gly Phe Ser Thr Gly Ala Asp Phe Ser Leu Asn
225 230 235 240
ggc ggc ctg cat atg ggc 738
Gly Gly Leu His Met Gly
245

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&lt;210&gt; 8

&lt;211&gt; 246

&lt;212&gt; PRT

<213> *Ralstonia eutropha*

&lt;400&gt; 8

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Met Thr Gln Arg Ile Ala Tyr Val Thr Gly Gly Met Gly Gly Ile Gly
1 5 10 15
Thr Ala Ile Cys Gln Arg Leu Ala Lys Asp Gly Phe Arg Val Val Ala
20 25 30
Gly Cys Gly Pro Asn Ser Pro Arg Arg Glu Lys Trp Leu Glu Gln Gln
35 40 45
Lys Ala Leu Gly Phe Asp Phe Ile Ala Ser Glu Gly Asn Val Ala Asp
50 55 60
Trp Asp Ser Thr Lys Thr Ala Phe Asp Lys Val Lys Ser Glu Val Gly
65 70 75 80
Glu Val Asp Val Leu Ile Asn Asn Ala Gly Ile Thr Arg Asp Val Val

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<210> 9
<211> 542
<212> DNA
<213> Pseudomonas sp. strain 61-3
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<210> 10
<211> 841
<212> DNA
<213> Ralstonia eutropha
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<400> 10						
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ctgtaccgag	gtctacggcg	gcgacgcctg	caccgtggcc	gacgcgggtc	gcttctactc	120
ctatcggcgc	gatggcgtga	ccggccgcct	ggccagcctg	gtctggctgg	cggaactgagc	180
ccgcccgtgc	ctcactcgtc	cttgcccctg	gccgcctgcg	cgcgctcggc	ttcagccttg	240
cgtcggcggc	ggccggggcg	gcccatgatg	tagagcacca	cgccaccggc	gccatgccat	300
acatcaggaa	ggtggcaacg	cctgccacca	cgttgtgctc	ggtgatcgcc	atcatcagcg	360
ccacgtagag	ccagccaatg	gccacgatgt	acatcaaaaa	ttcatccttc	tgcctatgac	420
tctggggcct	cggcagatgc	gagcgtgcga	taccgtccgg	taggtcggga	agcgtgcaagt	480
gccgaggcgg	attcccgcct	tgacagcgcg	tgcgttgcaa	ggcaacaatg	gactcaaatg	540
tctcggaatc	gctgacgatt	cccaggtttc	tccggcaagc	atagcgcattg	cggtctccat	600
gcgagaatgt	cgcgcttgcc	ggataaaaagg	ggagccgcta	tcgggaattga	cgcaagccac	660
ggccgcagca	ggtgcggtcg	agggcttcca	gccagttcca	gggcagatgt	gccggcagac	720

cctcccgtt tgggggagc gcaagccggg tccattcgga tagcatctcc ccatgcaaag 780  
 tggcggccag ggcaatgcc ggagccggtt cgaatagtga cggcagagag acaatcaa 840  
 c 841

<210> 11

<211> 292

<212> DNA

<213> *Ralstonia eutropha*

<400> 11

cctgccggcc tggttcaacc agtcggcagc cggcgtggc gcccggtat tgcggtgcag 60  
 ccagcgcggc gcacaaggcg gcgggcgttt cgtttcgccg cccgtttcgc gggccgtcaa 120  
 ggcccgcgaa tcgtttctgc ccgcgcggca ttcctcgtt tttgcgcaa ttcaccgggt 180  
 tttccttaag ccccgtcgct tttcttagtg ccttggtggg catagaatca gggcagcggc 240  
 gcagccagca ccatgttcgt gcagcgcggc cctcgcgggg gcgaggctgc ag 292